MONMX
REGIÓN MONTERREY

IAEA

International Atomic Energy Agency

Topic B: Containment and Safety Procedures during Nuclear Spills and Safely Utilizing Nuclear Power

Table of Contents

Directory of the MUNMX Region Monterrey team

Secretariat: Committees

Email:

Alejandra Ortiz
A01384686@tec.mx

Isabella Castillo
A01723451@tec.mx

Fernanda Ortega
A01571956@tec.mx

Miguel Mondragón
A01286462@tec.mx

Sebastian Tena
A01234792@tec.mx

WhatsApp:

Alejandra Ortiz 8441767303

Isabella Castillo 8115687167

Fernanda Ortega 8131330121

Miguel Mondragon 8180923953

Sebastian Tena 8714637614

Moderator - Miranda Palacios Dorbecker

Email:
A01179036@tec.mx

WhatsApp: 8126002979

President - Carola Medrano Olivares

Email:
A01179072@tec.mx

WhatsApp: 8124201412

Conference Official - Trinidad Segovia

Email:
A01178935@tec.mx

WhatsApp: 8181621938

LETTER FROM THE CHAIR

Welcome delegates! We are very excited to get to know you all. To let you all know a little about ourselves, my name is Miranda Palacios Dorbecker, and I will be your Moderator for this simulation. I am joined by Carola Medrano, our President, and Trinidad Segovia, our conference official. We are all from Campus Valle Alto, we've all been friends since middle school and are very excited to work together in this event. I am Trinidad Segovia and I like robotics and reading; I also like taking walks at the park and playing the guitar. We expect delegates to have fun in this simulation and be respectful with other delegates. We understand MUN can get very exciting and can sometimes get the best of us, it even gets us riled up as well, but it is important to remember to remain respectful and patient with other delegations and the chair. Any questions you may have regarding the topics presented you may send a message to any member of the chair. Thank you for taking an interest in IAEA this year and we will be more than happy to host you in our committee.

QUORUM

1. Arab Republic of Egypt
2. Argentine
3. Canada
4. Federal Republic of Germany
5. Federative Republic of Brazil
6. French Republic
7. Islamic Republic of Pakistan
8. Islamic republic of Iran
9. Japan
10. Kingdom of Belgium
11. Kingdom of Denmark
12. People's republic of China
13. Republic of Afghanistan
14. Republic of Colombia
15. Republic of Cuba
16. Republic of Finland
17. Republic of Iceland
18. Republic of India
19. Republic of Iraq
20. Republic of Italy
21. Republic of Kazakhstan
22. Republic of Korea
23. Republic of Poland
24. Republic of South Africa
25. Republic of South Sudan
26. Russian Federation
27. State of Israel
28. The Federal Republic of Somalia
29. The Swiss Confederation
30. Turkey
31. Ukraine
32. United Arab Emirates
33. United Kingdom
34. United Mexican States
35. United States of America

BRIEF INTRODUCTION TO THE COMMITTEE

The International Atomic Energy Agency (IAEA), also widely known as “Atoms for Peace and Development”, is an autonomous international organization. It was established in 1957, with the primary purpose of ensuring safety and peace during the time of the technological exploration of nuclear energy. The creation of the committee dates back to World War 2, when the idea of creating a specialized committee dedicated to the use of nuclear energy was proposed by the United States. In 1953, President Eisenhower of the USA, gave a speech called “Atoms for Peace”. In 1955 the proposal for IAEA was drafted, and approved by 82 UN member states. The committee’s goals include reaching a peaceful and beneficial use of nuclear technology, fighting detrimental and conflictive uses of it, and attempting to use it to harness its potential as an aid to the planet. Some among these uses can exist in relation to socio-economic goals of nations, generating infrastructure in a sustainable manner, and more. IAEA also determines safety regulations and shares appropriate safety maintenance levels needed to protect the environment and world as a whole. The committee ensures cooperation and works with the use of treaties and agreements, ensuring its member states utilize facilities and materials properly and peacefully. All this to have a safe, flourishing and unified future for our society.

Topic B: Containment and Safety Procedures during Nuclear Spills and Safely Utilizing Nuclear Power

In the current day and age, the topic of nuclear energy is widely discussed. Particularly, there are a plethora of concerns about how nuclear waste, the spread of nuclear weapons, and accidents have led to debate over whether nuclear power is sustainable. It is crucial to understand the milieu behind the debate.

The first safety procedure released by IAEA was released in 1958, a year after its creation. It would become the first of the many IAEA Safety Standards. These specifically provide different pieces of information regarding principles, standards of conduct, regulations, guidelines, data, manuals, and expert panel reports. All of these are established by IAEA staff in collaboration with member states, who review and agree on content. These publications had the utmost relevance, seeing as it was one of the first methods of sharing data and the latest research between nations (IAEA, 2018). An advance of importance came after the Cuban Missile Crisis. The USA and USSR subsequently negotiated a Partial Test Ban Treaty to ensure peace and install safeguards to the reactors in the country. The 1960's were particularly pivotal to developments of the science of radiation-related technology in the agricultural field, the medicinal field, and industrial field. During the 1970's, nuclear energy became a big topic on a global agenda, exploring more possibilities as the future of nuclear energy as a source of power became more promising. As such, the research on the topic was of higher demand and importance. More research centers were implemented, and it was decided to construct a global network of analytical laboratories (J.A. Gibson, 1998).

The swift development during the 70's was severely impacted by an incident, known as the Three Mile Island nuclear accident in 1979. The economic impact was the primary concern, seeing as the radiation released was minimal, but it had major ramifications for

future nuclear power development on a global scale. It is relevant to consider the fact that implemented regulations are not legally binding, though they are signed principles mutually agreed on by member states, which leads to the omnipresent risk of countries being able to use that technology for nefarious means or means detrimental to any party. A nuclear research reactor in Iraq was targeted and attacked in 1981, most likely as a result of concerns over the development of nuclear technology for use in weapons. However, this incident soon became overshadowed by the infamous case of Chernobyl, located in Ukraine, in April 1986. According to the World Nuclear Association, the Chernobyl accident was the outcome of a reactor with a defective design that was operated by staff who weren't properly trained, most likely due to a lack of information on safety procedures, thus validating the need for them and the purpose of the committee. Aside from the initial effect, the event resulted in radioactive materials being released and dispersed throughout most of Europe, taking many lives both from the explosion and from the consequent maladies induced by radiation levels, even in further generations. There are a myriad of factors and data to consider when discussing this topic, but the main takeaway from it is that this event, though mostly unique in nature, is a risk that is relevant to consider when dealing with nuclear technologies and the harnessing of its potential (World Nuclear Association, 2022).

Key Terms/Main Ideas

- **Weapons proliferation:** The increase in distribution of both weapons and the materials needed to make them, addressed within the topic.
- **Radiation:** The discharge of energy, causing ionization, as electromagnetic waves or subatomic particles move.
- **Ionization:** A type of energy that damages cells and genetic material in a detrimental manner by removing electrons from atoms and molecules of various materials.
- **Energy density:** The quantity of energy stored in a certain system or area of space per unit volume. Relevant to powering an urban and developed society.

Current Issues (Relevant International Action)

In today's society, it is not an easily dismissed fact that the need for nuclear energy has risen exponentially. As of 2017, fossil fuels made up approximately 65% of energy sources, releasing carbon emissions that culminate in high levels of global warming (IEA World Energy Outlook, 2018). Because nuclear power facilities don't emit any greenhouse gasses and have lower emissions while they're operating, they have a high potential for sustainable development. Its reliability and capacity for large scale use make it an optimal option for usage as an alternative energy source as well, as the demand for energy currently expands in modern society. Currently existing renewable energy technologies must advance due to the size of the task. Given its current availability and rapid expansion potential, nuclear energy is a crucial component in the fight against global warming (World Nuclear Association, 2022). According to a research conducted by the Nuclear Energy Agency in 2010, nuclear power plants have a very high safety record when compared to other electricity-generating sources, with the fewest direct deaths of any major energy source per kilowatt of energy generated. This however, does not ensure total safety. In March 2011, an earthquake and subsequent tsunami in Japan caused the shutting off the cooling and electricity to reactors in nuclear plants, mainly the ones in the Fukushima Daiichi plant. As a precaution, the Japanese authorities evacuated 100,000 people from their residential areas. The government concentrated on stopping the release of radioactive materials, particularly in contaminated water leaked from the three units, even though it had no immediate health effects and was unlikely to have any in the future, according to the United Nations Scientific Committee on the Effects of Atomic Radiation. Japan's reliance on nuclear power has evidently decreased now, but is expected to return to or near the original level at some point in the future. Vulnerability to disasters is a topic important to be considered when discussing containment and safety procedures regarding nuclear energy. Most nuclear plants have implemented the Severe Accident Mitigation Guidelines, and the State-of-the-Art Reactor

Consequences Analysis (SOARCA) came to conclusions about how a reactor accident develops, how current systems and emergency measures can affect an accident's outcome, and how an accident would affect the general public's health. Furthermore, The Study of Consequences of a Hypothetical Severe Nuclear Accident and Effectiveness of Mitigation Measures article was published by the Canadian Nuclear Safety Commission (CNSC) in 2015 to address this issue as well. As of August 2023, there are 436 operable reactors worldwide. Throughout history and due to globalization, countries have a deep interdependence. Particularly so in a nuclear field, seeing as materials for the creation of one reactor in a country requires materials from different suppliers around the world. All areas of the world have some involvement in nuclear power development. Similarly, the effects of the failure of containment in one nuclear plant can impact a very large radius of territories. Over 50 nations with 220 research reactors in operation have made sure that nuclear reactor performance is significantly enhanced. Compared to fewer than 30% in the 1970s, 68% of reactors, for instance, reached a capacity factor greater than 80% in 2021 (World Nuclear Association).

Questions a Resolution Must Answer

1. Which is the most concerning area of risk in the delegation when considering disaster containment during an emergency?
2. Which IAEA agreements and guidelines, according to the investigation, has the delegation signed or agreed upon?
3. How does the delegation cooperate in organizations that focus on the topic?
4. How many nuclear plants are active in the nation and how are they managed? What is their current state and efficiency of nuclear plants in the nation?
5. What is the potential of and how is current usage of nuclear energy within the delegation?

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